

The Material Culture of Oruarangi, Matatoki, Thames.

4. Musical Instruments.

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Considerable numbers of musical instruments were found at Oruarangi, including mouth flutes (*koauau*), nose flutes (*nguru*), shell trumpets (*pu-moana*) and *putorino*. Of these the *nguru* and the *pu-moana* were the most common.

Reference has been made in a previous paper (Fisher, 1934, p. 285) to bone flutes, so no further mention will be made at this stage.

Nose Flutes, or Nguru.

Of great interest were the *nguru*, especially a series which illustrate successive stages of manufacture. The earliest stage represented consists of a piece of finely grained sandstone (Pl. 27, fig. 1) which has been chipped and bruised into shape, but shows no indication of any polishing or drilling. It is roughly circular in section and certainly is very crude, yet it is an important piece for on comparing it with the finished flutes it gives a good indication of the care and skill expended on this class of musical instrument. The length, 126 mm., and width, 55 mm., compare very closely with finished nose flutes from this area.

The next stage is illustrated by a specimen fashioned from rhyolite. It is but a slight improvement on fig. 2, from which it differs in having a suspicion of polishing on a restricted area, and a hole commenced at the bottom end (fig. 2a)*. This hole is 9 mm. in depth and 18 mm. in width at the mouth. It appears to have been executed with a coarsely pointed drill. This specimen is 103 mm. in length and 37 mm. in width at the broadest part.

A further stage is illustrated in fig. 4, a specimen which is 125 mm. in length. Here the tube penetrates for a distance of 75 mm. from the bottom end, but a mishap occurred, causing the *nguru* to break transversely at a point 80 mm. from the bottom. Fortunately, the two portions were preserved, for on the top piece is a slight mark to indicate the point where the bore was to be commenced. Careful polishing of the outer surface had been completed before the drilling was attempted. This does not seem to have been a sound practice, for if an accident occurred, as it did in this instance, much time and labour was lost. That this

*It is assumed that the flute is held with the curved portion uppermost, hence the term "bottom end," used in this paper, refers to the broad end of the flute.

was not a consistent practice at Oruarangi is shown by an examination of the preceding specimen, fig. 3, where the bore has been started before the polishing process. Dr. J. B. Liggins, of Thames, possesses a short *nguru* 64 mm. in length which has been roughly worked into the required shape, but not finished. The bore has been carried a distance of 16 mm., but not completed. Thus we find that at least two specimens from this locality were drilled before the polishing process was carried out.

In fig 5 is seen a specimen 97 mm. in length, in which drilling has been performed from both ends, but the holes do not meet. The main bore from the bottom end penetrates a distance of 84 mm, while the other is only 24 mm. in length. The two holes very nearly meet, and can only be separated by a very short distance. The actual drilling in this and other specimens must have been a difficult task. Best (1924, vol. 2, p. 157) remarks that "these *nguru* must have been bored from both ends," a remark which is clearly proved in this instance. After examining the Oruarangi specimens, the writer thinks it possible that the bore was commenced with a stone pointed drill, and the process continued either with the aid of damp sand and a cylindrical piece of hard wood, or else with a piece of rounded sandstone. To the writer's knowledge no drill point of sufficient length has so far been obtained from this or any other area in New Zealand. Shortland (1851, p. 118) records from the South Island the use of a drill in which the point of the wooden shaft takes the place of the stone point. Damp sand was fed into the hole during the drilling process. No stops have been drilled in this specimen, but a small hole has been commenced near the top end. A hole at this point is a characteristic feature of stone *nguru*. Best (1925, p. 147) remarks that "it would be interesting to know the proper function of the small hole pierced on the outer, convex side of the small end." For want of a better term, I am referring to this small hole as the back stop throughout this article. Andersen (1934, p. 264), referring to this hole, says "the odd hole at the back of the bend altered the pitch."

A finished specimen is well illustrated in fig. 6. It appears to be fashioned from baked clay. It is 94 mm. in length, and 21 mm. in width at the bottom end. There are two stops, both about 3.5 mm. in diameter, the first 13 mm. and the second 36 mm. from the bottom end, while the back stop is 9 mm. from the top end. In this, as in most other finished *nguru*, there is a definite symmetry which is very pleasing, showing that the aesthetic sense of the Maori was well developed.

The most perfect *nguru* (figs. 7 and 8) from the locality is one in the possession of Mr. W. Hammond, of Thames who very kindly deposited it for purposes of comparison. Like the preceding example, it appears to be made from baked clay. It is 92 mm. in length and 24 mm. at the widest part, and presents a short, squat appearance. The stops are 17 mm. and 39 mm. respectively from the bottom end, while there are two back stops at the top end. Over the whole surface a very fine finish has been obtained, a feature which is enhanced by the beautiful

carved design representing human faces, which decorates the specimen. It is carved so that one pair of eyes serves for two faces. Thus if attention is focussed on the nose on one side a face stands out very clearly. Directly opposite on the other side is another nose which, with the same eyes previously observed, forms another clearly defined face. The main bore serves as a common mouth for the faces, a feature not uncommon in decorated flutes of this type.

Immediately below the nose is a tooth which is flanked with a tooth on each side. These two flanking teeth occupy the same position if the other face be observed.

An almost perfect specimen (278 Liggins Coll.) shows traces of a mouth carved at the bottom end. No evidence of eyes or teeth is discernible; in fact, if it were not compared with the preceding and similar specimens, some doubt might be entertained as to the exact representation intended. This specimen is carefully finished throughout, but is marred by a hole broken on the side, probably done long after the completion of the specimen.

A small broken *nguru* (fig. 9), 78 mm. in length, fashioned from baked clay, apparently illustrates an attempt to make a larger stop. Incisions on the flute mark off a rectangular area 17 mm. long by 15 mm. wide, within which a large hole has been started 13 mm. long. One border of the hole reaches the incision nearest the bottom end. If the above interpretation is correct it denotes a radical departure from the traditional type of stop used, inspired, possibly, by an accident while trying to make a small stop. Were it not for the incisions marking off the rectangle, the writer would have regarded the hole as a result of a mishap during the drilling process.

The drilling of the back stop has been commenced, but it does not reach the main bore. The break across the flute renders it easy to examine the bore itself. The bore at the bottom end is 16 mm. in diameter, and its diameter diminishes steadily until where it reaches the hole drilled from the top end it is only 3 mm. This tapering takes place along a length of 65 mm. Although in the illustration the *nguru* appears to be straight, when viewed sideways the curved top is quite plain.

In the Museum collection there are thirteen perfect or imperfect *nguru*, while Dr. J. B. Liggins has deposited four and Mr. W. Hammond one. This does not exhaust the number from the site, but it indicates that this type of flute was commonly used.

The following table gives particulars concerning many of the specimens. In measuring the distance of the stops, the centre of the stop has been used as the boundary in each case.

A study of this table brings out several interesting items. It will be noticed that the stops are always placed close to the bottom end, a consistent feature not only in Oruarangi specimens, but also in *nguru* from other areas. The distance of

No.	Fig.	Length. mm.	Width at top end mm.	Width at bottom end mm.	Distance of back stops from bottom end mm.	Distance of back stop mm.	Material.	Remarks.
18957	1	126	—	55	—	—	fine grained sandstone	Represents first stage of manufacture. Drilling of bore just started.
19578.1	2	103	—	37	—	—	rhyolite	
19578.2	4	125	17	35	—	—	fine grained sandstone	Carefully shaped — bore partially drilled; broken.
19577.1	6	94	11	21	13, 36	9	baked clay	Perfect specimen.
285 Liggins Coll.	3	64	10	17	—	16	igmimbrite	Unfinished.
19577.3	5	97	15	29	—	—	baked clay	Bore almost completed, lacks stops.
Hammond Coll	7, 8	92	9	20	17, 39	8, 14	baked clay	Perfect specimen, decorated with human faces.
278 Liggins Coll.	—	82	11	21	20, 37	17	fine grained sandstone	Almost perfect.
18918	—	78	12	23	—	18	baked clay	Large hole in place of stops, broken.
280 Liggins Coll.	—	79	7	18	14, 34	7	rhyolite	Fine specimen.
19577.2	—	89	9	22	17, 35	Broken	coarse grained sandstone	Slightly damaged.

the second stop from the bottom end does not vary to any extent. Of the specimens measured, the maximum and minimum distances are 39 and 34 mm. respectively. Each *nguru* has two main stops and, except in one instance, only one back stop. The exception, Mr. Hammond's flute, possesses two back stops. Materials used included fine and coarse grained sandstone, rhyolite and what appears to be baked clay. It is generally understood that the Maori did not bake clay for domestic vessels, but clay was apparently treated in some manner, either dried in the sun or wind, or possibly baked with heat from a fire. Williams (1917) quotes the word *matapaia* as referring to "a clay which when baked hard was used as stone for cooking."

Mouth Flutes, or Koauau.

The only perfect stone *koauau* (figs. 10 and 11) in this collection is fashioned from coarse grained sandstone. It is 91 mm. in length, with a bore 13 mm. in diameter at the top end, and 20 mm. at the bottom end. At the latter end the flute is decorated with a face somewhat similar to that in fig. 8, only not quite so elaborate. Like that figure, it has two faces in one, but it lacks teeth, which are present in fig. 8. One nose is in line with the stops, which are three in number and are not spaced equally. From the top the stops are spaced as follows:—16 mm., 48 mm., 68 mm. Near the middle stop further decoration is secured by the use of small spiral carving, which shows up clearly in the illustration. No attempt has been made at a suspension hole at the back, a feature often noticed in wooden and bone specimens. While the latter materials were commonly used for manufacture into *koauau*, stone seems to have been generally reserved for the *nguru*. Andersen (1934, p. 230) remarks that the *koauau* "was made of wood or bone," but makes no reference to the use of stone.

Dr. J. B. Liggins has in his collection an unusual specimen (fig. 12) which appears to be a broken *koauau* converted into some form of musical instrument. In its present form it is 59 mm. in length and 38 mm. in diameter. Only one stop is intact, but the fractured portion breaks across another stop which is 15 mm. from the first mentioned. At one end for approximately 14 mm. the stone has been reduced to a diameter of 31 mm. The exact purpose of this reduction is difficult to determine, but the suggestion is advanced that possibly a wooden mouthpiece was fitted to this part, thus lengthening the flute.

Putorino, or Flageolet.

The single specimen (fig. 14) recovered from Oruarangi is of great interest. Without a vestige of carving, it conforms closely to the customary shape of such flutes. It is fashioned from two light pieces of wood which have been hollowed out, then carefully lashed together. A wide, shallow groove at the lower end is in evidence to keep the lashing in position at that part. Unfortunately, the mouthpiece is somewhat damaged, hence we

cannot be quite certain of its original length, though it cannot be shortened to any great extent, because a portion of a shallow groove is noticeable for lashing purposes at this end also. In its present state it is 303 mm. in length and 28 mm. at the widest part, which happens to be the spot where the large and approximately rectangular shaped aperture is placed. This aperture commences 151 mm. from the bottom end, and is 22 mm. long by 16 mm. wide. The upper half of the instrument is much wider than the lower half, which tapers away markedly as it approaches the bottom end, which terminates in a rounded point perforated by a small hole 3 mm. in diameter.

Pu Moana, or Shell Trumpets.

Six shell trumpets from this locality indicate that they were not uncommon. All have the apex broken off, and all, owing to the length of time buried underground, lack the wooden mouthpiece. With one exception all are fashioned from *Charonia capax*, while the odd example is from a large specimen of *Struthiolaria papulosa* (*kaikaikaroro*), 73 mm. in length. The latter being too small for effective use as a trumpet, probably served as a substitute for a juvenile exponent of the trumpeter's art. On the body of the shell near the outer lip a hole 3 mm. in diameter has been drilled, apparently to provide for the attachment of a suspension cord to guard against loss. Further reference will be made to this feature when dealing with the next specimen.

Although damaged, fig. 13 displays interesting features. It is 193 mm. in length, and where the apex has been removed it is carefully smoothed for the attachment of the wooden mouthpiece. Four small holes drilled at intervals along the edge would render more secure the attachment of the mouthpiece. This is an unusual feature in shell trumpets, only one other example being known to the writer and that was observed among the exhibited material in the Dominion Museum. It is referred to by Best (1925, p. 160), who mentions that it "was found in a midden on Somes Island. The point had been cut off, ground even, and three holes pierced near the edge to accommodate lashings for securing the mouthpiece."

The above remark applies to shell trumpets minus the mouthpiece. In order to see whether this feature was present in shell trumpets possessing a mouthpiece, all the old specimens in the Auckland Museum collection (i.e., those made from *Charonia capax* and not those made from the introduced *Charonia tritonis* of the Pacific) were submitted to Dr. F. J. Gwynne for an X-ray examination. The writer is deeply indebted to Dr. Gwynne for his assistance in this matter. Of the three examined, two displayed holes in a similar position to that noted in the Oruarangi specimen. In both specimens three holes had been drilled.

The two trumpets referred to are Nos. 81 and 16389 in the Auckland Museum collection, both of which are illustrated by Andersen (1934, fig. 64). The former is the celebrated specimen from the Taupo district known as Te-Awa-o-te-atua. The

locality from which the latter originated is unknown. It is thus shown that the drilling of the top of the shell portion of the trumpet for the attachment of the wooden mouthpiece is known from such widely scattered areas as Oruarangi, Taupo and Wellington. It is highly probable that this feature will be noted from other areas.

The X-ray disclosed other interesting items. For instance, most of the Oruarangi shell trumpets—all minus the wooden mouthpiece—had been very carefully ground down at the top where the apex had been cut away. In the two specimens previously referred to the same treatment was noticed, both being carefully ground and smoothed. When we reflect that this portion of the trumpet was not visible once the wooden mouthpiece had been attached, we realise that the Maori preferred to make a neat finish to his work, a sure sign of a craftsman.

Another noticeable feature was the distance which the shell was inserted into the mouthpiece. No measurements were made, but in all three examples the distance was considerable. Obviously this overlap was most important to make certain that the lashing would hold the two parts firmly together.

Like the small trumpet referred to above, there is a hole drilled in the outer lip. To this hole was fastened a cord, so that the trumpet could be slung round the neck. Best (1925, p. 160), quoting Polack, says "a strip of dog's skin is attached to them for portability." Three other specimens in the Auckland Museum have a hole drilled in a similar position, and one has a length of cord attached. This specimen (No 81, A.M. Coll.) is figured by Best (1925, fig. 100). Dr. J. B. Liggins, of Thames, has in his collection a shell trumpet from Oruarangi drilled on the outer lip.

A medium sized trumpet, 122 mm. in length, has a perforation drilled from the back of the canal. This discloses a feature not common in material from Oruarangi, for, prior to drilling, a cut 12 mm. long and 2 mm. wide has been made, and then the hole drilled in the middle of the cut. A single needle (Fisher, 1934, p. 280) from the area was worked in a similar manner.

It is interesting to note that all the important types of musical instrument were found at Oruarangi with the exception of the long wooden trumpet. Its absence may possibly be accounted for owing to the perishable nature of wooden specimens. Up to the present the Oruarangi site has probably produced a greater variety of musical instruments than any other single site in New Zealand. As the result of further work in the future it will be interesting to see whether the distribution of all the main types of musical instruments is general throughout the country, or whether certain types will be missing in certain areas. Present indications, based perhaps on slender evidence, seem to indicate that they will be of wide distribution with the exception of minor types. It is to be expected that minor differences in the types will be detected.

The decoration of the *nguru* and *koauau* from the Oruarangi area will undoubtedly prove of great interest when further specimens are available for comparison. The use of the human face motive seems to be characteristic of both types of flute. Where this motive is employed it usually follows strictly conventional lines, and very little variation is noted in the main parts of the design. The introduction of the spiral on the body of the *koauau* is an uncommon feature.

In other areas it is only on occasional specimens that any attempt is made to decorate the body of the flute, decoration being usually confined to the two ends. Occasionally specimens are noted where the carving covers the whole area, but such specimens are usually of wood or bone. The use of stone increased the difficulties of the *tohunga whakairo*, and consequently led to restricted activities in that direction. The use of the human head motive usually seen at the mouth of a flute is not peculiar to flutes, but is exploited wherever an opening occurs in an implement or utensil. Examples that might be quoted are the beautiful carved feeding funnels (*korere*) used to feed the patient after tattooing had been performed or the food bowls (*kumete*) with a spout carved at one end. It is only another instance of the clever manner in which the Maori adapted a decorative design to suit a practical purpose.

The writer is indebted to Mr. W. Hammond and Dr. J. B. Liggins, both of Thames, for the loan of specimens, to Mr. D. A. Brown, B.Sc., for the identification of materials employed, and especially to Mr. A. G. Stevenson, for once more preparing photographs.

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Stone *nguru*, or nose flutes, illustrating progressive stages of manufacture.

- Fig. 1. First stage; the stone roughly shaped.
- Figs. 2 and 2a. Outer surface slightly polished and bore commenced, fig. 2a.
- Fig. 3. Small specimen with bore commenced.
- Fig. 4. Bore penetrates a distance of 75 mm.
- Fig. 5. Bore drilled from both ends, but no junction effected; lacks stops.
- Fig. 6. Completed *nguru*.

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- Figs. 7, 8. Side and front views of *nguru*, decorated with human face.
Fig. 9. Broken *nguru*, showing unusual working of hole.
Figs. 10, 11. Side and front views of a *koauau*.
Fig. 12. Broken *koauau* adapted for attachment of mouthpiece.

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Fig. 13. Shell trumpet, or *pu moana*.

Fig. 14. Wooden flageolet, or *putorino*.